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STUDY OF THE INFLUENCE OF RELAY ELEMENTS ON THE EROSION PROCESS ON THE BASIS OF GIS TECHNOLOGY

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Annotation

Erosion of local climatic conditions of Azerbaijan has become widespread. Through this point of view, different forms of erosion (washing, erosion, deflation, etc.) can also be seen in several types of soil formed within the republic's territory. It should be taken into account that the upper fertile layer of the soil is washed away as a result of erosion and thus the soil is deprived of it for a layer for humus. The effect of relief elements on the erosion processes that occur in the Gadabay area lands was studied on the basis of GIS technologies in the presented paper.

Keywords

Exposition, slope, electronic map, landscape, relief, raster palette.

Introduction

In terms of indicators, the more eroded the soil, the more its uneroded form, granulometric, physical and chemical composition, water, air, thermal regime, bioecological properties, etc. would differ markedly. In order to position the details collected on electronic maps, it is necessary to refer to the "GIS" program, which is the most modern and convenient method to help us process complex data any form and scale details. It will help Course, we have the ability to explore and imagine the interaction structures of complex systems, strongly interrelated in nature. At the same time, the program itself enables us to carry out a systematic study of natural and anthropogenic processes occurring in nature and in various economic sectors, as well as Identify global contributing factors to those processes. The design and development of the data base is one of the essential functions of the Geographic Information System. The first step in constructing a database is the identification and refining of the information that we need. The information is sorted at this point so that it can be quickly found and inserted into the database in the form of a raster or vectors. The accuracy of the results of the study depends on the nature of the data directly entered into the database. Here the main role is played by proper selection of the final raw material of information. Information-bearing media which may be the final raw material are primarily field measurements, GPS coordinate field support point's info, and area satellite images (Landsat 2, 8). And cartographic data (land maps, geographical, topographical, etc.); the final results can be of different forecasts and sizes. The low accuracy of the final data means less information is collected and a higher layer of accuracy is not produced. In order to avoid such a situation, information on the accuracy of the base data, particularly its dimensions, is required. The next step is to insert the final data into the database, and to build data layers. The method of inputting data into the system depends on the final data form. Then comes the next step, namely the processing of data in the database. The final data will be brought together into a single projection during this process. In any case one projection can be modified to another, as well as translating data from raster to vector format, or vice versa.

Object and methods for the analysis. The focus of research was mountain-brown and

mountain-black soils formed from various views of the northern slope of the Lesser Caucasus northern region. The degree of soil erosion at the study target was calculated on the basis of KA Alakbarov's proposed comparative geographical methodology, and SHG Hasanov's determination of morphogenetic features.

Performance Review

The high altitude and the slopes create ideal conditions for processes of erosion. The development of an area model DEM (Digital Elevation Model) with the help of GIS technologies incorporates the following procedures. The first stage involves scanning topographic maps and geographic closure within the coordinate system, map digitization, formation of vector layers of altitude and isolation, electronic design of topographic maps at a scale of 1:100,000. A map of exposure and slope levels based on GIS technologies is created very quickly and easily with the aid of the DEM model .Specific slope features of the relief region where the soil layer is formed are commonly used in geographic research. A map of inclination levels shows one of the key morphometric indicators of the Gadabay zone. Slopes with a slope of more than 27-34 ° belong to the group of very steep slopes as shown in the diagram; the red sections indicate steeper slopes. The green pieces represent relative flat areas. If the area's slope decreases, the relief becomes level, and as the slope rises, the slope becomes steeper. The slope of the slopes in mountainous areas is 27 ° and more which causes landslides. The slope of the slopes and the elongation rate influence the runoff rate, the density of Vegetation, humidity, and temperature of the soil. Those factors are also one of the major causes of landslides. Slope rigidity analysis using ArcCIS version 10.3 has shown that the average slope stiffness in the study area's mountainous areas is 27-34 degrees. The principal aspect of landscape clearly this element provides sufficiently fertile conditions for moisture production, as well as soil and vegetation.

Spatial study of the slope confirms explicitly its relation with the area's geo-lithological and morphostructural structure. At altitudes of 1000-2000 m, the active landslides are more prominent on slopes. It is because of the lithological composition of the rocks Exposure is one of the primary morphometric measures of slopes. This characterizes the degree to which the slopes have solar energy. Exposure is measured in clockwise direction, moving from 0 degrees to 360 degrees across a full circle. Every color displays the Degree of field illumination .The southern slopes are represented by shades of green and brown, red and pink on the north slopes, gray on the western slopes and yellow on the eastern slopes. A nearly smooth surface shows a gray colour. The exposure of the slopes is divided into the following forms, according to the total length of the sun's rays:

1. Hot below 0 ° -22.5 ° to 337.5 ° -360 °;

2. Moderate cold 22.5 ° -67.5 ° to 292.5 ° -337.5 °;

3. Warm up 67.5 ° -112.5 ° to 157.5 ° -202.5 °;

4. Medium heat between 112.5 ° -157.5 ° and 202.5 ° -247.5 °;

A quantitative assessment of the different illumination of the slopes is provided from the digital version of the slopes' solar exposure. In the exposure network the value of each cell shows the direction of inclination. As there is no smooth descent path it takes the value -1. The exposure map of the slopes compiled in electronic format allows the regularity of the space to be analyzed that makes it easier for us to assess the heat supply conditions under which the landscape is created. The first solution represented the relative time of direct exposure to the rays of the sun. The analysis of the data obtained allows the fields to be compared, to find on them the regularity of spatial expansion. Every selected area on the digital map is numerated sequentially. The slope is divided into two forms according to the presentation-cold and dry. The transitions are viewed as relatively warm and cold.

Cold slopes predominate and are moderately cold. Although landslides and denudation processes predominate on the north slopes, surface and linear erosion processes dominate the southern slopes. Because of the low vegetation on the south slopes, the surface and linear erosion processes predominate in the slopes. The soil layer will partly maintain its structural structure without being completely washed away by surface sediments, due to the sparse vegetation of the southern slopes, which are well warmed by the sun's rays.

The outcome

As a result of field and chamber surveys conducted in 2014-2016, it has been determined that brown mountain-forest soils are produced on slopes with an 11 percent inclination, and other soils with an 11 percent inclination (on a fairly smooth part of the relief). Soil resistant to leaching is a small part of the study area (hazard rating I-6.5 percent of the total area). Risky soils of medium degree II Area and low grade III hazardous soils constitute 9.0 percent of the total region.